

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Arthur L. Cleary, Joseph A. Lahut, Rainer Rall and Paul Duncanson

Application No.: 10/057,797

Group: 3651

Filed: October 29, 2001

Examiner: Not Assigned

Confirmation No.: 9380

For: Printing System With Vacuum Table

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to Assistant Commissioner for Patents, P.O. Box 2327, Arlington, VA 22202

on

Date

Signature

JANE MORGAN

Typed or printed name of person signing certificate

PETITION UNDER 37 CFR §1.53(e)(2) IN RESPONSE TO NOTICE OF OMITTED ITEMS

Box DAC
Assistant Commissioner for Patents
P.O. Box 2327
Arlington, VA 22202

Attn: Office of Petitions

Sir:

In response to the Notice of Omitted Item(s) in a Nonprovisional Application mailed on September 5, 2002, Applicants hereby file a petition under 37 CFR §1.53(e)(2) requesting that pages 3, 8 and 13 indicated as omitted in the Notice of Omitted Item(s) be acknowledged as being filed with the USPTO as of October 29, 2001. A copy of the Notice is attached.

In support of the petition, enclosed is a copy of the postcard filed with the application, and returned with the serial number and date received indicating the total pages received was 14. A copy of the missing pages, 3, 8 and 13 is also enclosed.

10/02/2002 AWONDAF1 00000092 080380 10057797

01 FC:122 130.00 CH

Adjustment date: 11/05/2002 AKELLEY

10/02/2002 AWONDAF1 00000092 080380 10057797

01 FC:1460 130.00 CR

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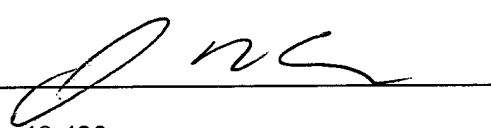
As stated in M.P.E.P. §503, a postcard receipt which itemizes and properly identifies the items which are being filed serves as *prima facie* evidence of receipt in the USPTO of all the items listed thereon on the date stamped thereon by the USPTO. In the present case, the date-stamped postcard receipt specifically identifies 14 pages as being received in the USPTO on October 29, 2001. Accordingly, it is submitted that the Applicants have provided sufficient evidence to prove receipt of the missing pages 3, 8 and 13, in the USPTO as of the filing date of October 29, 2001.

Please reissue an updated corrected filing receipt to indicate the total number of claims filed should be 20, independent claims should be 2 and we maintain the original filing date of October 29, 2001.

Authorization is hereby granted to charge the \$130 Petition Fee under 37 CFR 1.17(h). Please charge any deficiency or credit any overpayment in the fees that may be due in this matter to Deposit Account No. 08-0380. A copy of this letter is enclosed for accounting purposes.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By 
John M. Card
Registration No.: 48,423
Telephone: (978) 341-0036
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Concord, MA 01742-9133

Date:

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detects the vacuum provided by the vacuum table, and the sensor can be coupled to the CPU which receives information from the sensor.

In some embodiments, transport belt is made from woven polyester such as, for example, a reinforced polyurethane. The transport belt can have a thickness of about 0.09 inch, and the holes of the transport belt can be spaced apart by about 1 inch, and have a diameter of about 0.1 inch.

In other embodiments, the transport belt is made from stainless steel which can have a thickness of about 0.008 inch. The porous sheet can be made of sintered, porous polyethylene, and have a thickness of about 0.5 inch.

In a related aspect of the invention, a method for transporting a substrate in a printing system includes generating a vacuum with a vacuum table for holding the substrate on a transport belt, and maintaining the vacuum at a desired level as the area of the transport belt covered by the substrate varies as the substrate is transported through the printing system.

In some embodiments, the desired level of vacuum is maintained from about -0.05 psi to about -0.3 psi. In certain embodiments, a porous sheet which acts as a flow restrictor is used to distribute the vacuum over a region of the transport belt.

Among other advantages, the vacuum table is able to generate a vacuum that need not be varied as the substrate covers varying portions of the belt. The porous sheet facilitates drawing a continuous vacuum with the vacuum table, while making no further adjustment to the vacuum level as one or more substrates are transmitted through the printing system during the print process. This feature is applicable to both continuous substrates, for example, those supplied from a roll, as well as non-continuous substrates such as a flexible or a rigid sheet supplied individually.



During the printing process, as the substrate 32 is fed by the feed wheel 30, the position sensor 55 detects the height of the dancer 34. This height information is transmitted to the feed controller 54 which in turn adjusts the power to the feed motor 53 to increase or reduce the feed speed, or to reverse the feed direction of feed wheel 30 such that a constant tension is maintained in the substrate. A constant tension is desired to maintain positional accuracy of the substrate and to remove any wrinkles in the substrate while it moves through the printing system.

The printing system 10 can detect thickness variations of the substrate regardless of the width of the substrate or the position of the substrate relative to the width of belt 18. This capability is illustrated in FIGS. 3A and 3B. As shown, the thickness indicator roller 20 rotates freely about a bar 21 that is supported by a pair of ratchet/gear mechanisms 57, each of which includes a gear 58 engaged with a ratchet 59. Thus when a substrate causes the height of indicator roller 20 to vary, both of the gears 58 rotate so that the indicator roller 20 is at the same height, "h", along the width, "w₁", of the belt 18 regardless of the width, "w₂", of the substrate 32 that is fed to the printer system. Note that the vertical position, "y", of the dancer 34 (FIG. 2) is also controlled by a similar ratchet/gear mechanism. Alternatively, a laser triangulation device is used to determine the thickness of the substrate.

Referring now to FIGS. 4A and 4B, the rail system 14 includes a top rail 60 and a bottom rail 62. These rails are attached to a set of spacer support plates 64 by a set of screws 65 along a bottom and a top machined V-groove 66a and 66b, respectively. These grooves 66 provide a two-point contact with each of the rails 60 and 62. This two-point contact is maintained along the entire length of the rails 60 and 62. The set of support plates 64 is attached to a support beam 67 of the base 12 by a series of set screws 68. The horizontal displacement, "x", of the support plates 64 with respect to the support beam 66 is adjusted by a set of horizontal jack screws 70. Each horizontal jack screw 70 is associated with a bellville washer 71 that pushes the support plates 64 away from the support beam 66 to assure that the horizontal jack screws 70 are always under tension. The vertical position, "y", of the support plates 64 is adjusted by a set of



16. A method for transporting a substrate in a printing system, comprising:
generating a vacuum with a vacuum table for holding the substrate on a transport belt; and
maintaining the vacuum at a desired level as the area of the transport belt covered by the substrate varies as the substrate is transported through the printing system.
17. The method of claim 16, wherein the desired level of vacuum is maintained from about -0.05 psi to about -0.3 psi.
18. The method of claim 16, wherein maintaining includes using a porous sheet to maintain the vacuum at the desired level.
19. The method of claim 18, wherein the porous sheet acts as a flow restrictor.
20. The method of claim 18, wherein the porous sheet distributes the vacuum over a region of the transport belt.

2005/15/5001



COPY

Initials: LRR/JMC/jag Docket No.: 3128.1001-001 Date: 10/29/01

This is to acknowledge receipt of ☒ NEW ☐ CIP APPLICATION as follows:

☒ Application Transmittal Express Mail Label No. EV005366958US
☐ Fee Transmittal w/copy Statement S/E Status
☒ Specification - Total pages 14
☒ Drawings ☐ Formal ☒ Informal - Total sheets 1/7-7/7
☐ Executed Declaration/Power of Attorney - Total pages
☐ Assignment/Recordation cover sheet w/postcard
☐ Sequence Listing in Paper & CRF, Statement 1.821(f)
☐ Other
☐ Check (\$) includes Assignment recordal fee
☐ Authorization to Charge all Fees

Applicant(s): Arthur L. Cleary et al.

☐ CIP of Application No.

☒ Claims benefit of U.S. Provisional Application No. 60/244,303

Title: Printing System with Vacuum Table

Date received by the PTO:

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**UNITED STATES PATENT & TRADEMARK OFFICE
Washington, D.C. 20231**

REQUEST FOR PATENT FEE REFUND				
1 Date of Request: <u>10/31/02</u>		2 Serial/Patent # <u>10/057,797</u>		
3 Please refund the following fee(s):		4 PAPER NUMBER	5 DATE FILED	6 AMOUNT
<input type="checkbox"/>	Filing			\$
<input type="checkbox"/>	Amendment			\$
<input type="checkbox"/>	Extension of Time			\$
<input type="checkbox"/>	Notice of Appeal/Appeal			\$
<input checked="" type="checkbox"/>	Petition	<u>8</u>	<u>10/01/02</u>	\$ <u>130.00</u>
<input checked="" type="checkbox"/>	Issue			\$
<input type="checkbox"/>	Cert of Correction/Terminal Disc.			\$
<input type="checkbox"/>	Maintenance			\$
<input type="checkbox"/>	Assignment			\$
<input type="checkbox"/>	Other			\$
		7 TOTAL AMOUNT OF REFUND		\$ <u>130.00</u>
10 REASON:		8 TO BE REFUNDED BY:		
<input type="checkbox"/>	Overpayment	<input type="checkbox"/> Treasury Check		
<input type="checkbox"/>	Duplicate Payment	<input checked="" type="checkbox"/> Credit Deposit A/C #:		
<input checked="" type="checkbox"/>	No Fee Due (Explanation):	9 <u>08--0380</u>		
<u>Missing pages present on filing - Postcard receipt</u> <u>proves it</u>				
11. REFUND REQUESTED BY:				
TYPED/PRINTED NAME: <u>E. Sharon Willis</u>		TITLE: <u>Patents Attorney</u>		
SIGNATURE: <u>E. Sharon Willis</u>		PHONE: <u>308-67128</u>		
OFFICE: <u>Office of Petitions</u>				
***** THIS SPACE RESERVED FOR FINANCE USE ONLY: *****				
APPROVED: <u>Alison Kelly</u>		DATE: <u>11/01/02</u>		

Instructions for completion of this form appear on the back. After completion, attach white and yellow copies to the official file and mail or hand-carry to:

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WASHINGTON, D.C. 20231
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APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/057,797	10/29/2001	Arthur L. Cleary	3128.1001-001

CONFIRMATION NO. 9380

FORMALITIES LETTER



OC00000008738035

Leo R. Reynolds, Esq.
HAMILTON, BROOK, SMITH & REYNOLDS, P.C.
530 Virginia Road
P.O. Box 9133
Concord, MA 01742-9133



Date Mailed: 09/05/2002

NOTICE OF OMITTED ITEM(S) IN A NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

A filing date has been accorded to the above-identified nonprovisional application papers; however, the following item(s) appear to have been omitted from the application:

- Page(s) 3, 8, 13 of the specification (description and claims).

I. Should applicant contend that the above-noted omitted item(s) was in fact deposited in the U.S. Patent and Trademark Office (USPTO) with the nonprovisional application papers, a copy of this Notice and a petition (and \$130.00 petition fee (37 CFR 1.17(h))) with evidence of such deposit **must** be filed within **TWO MONTHS** of the date of this Notice. The petition fee will be refunded if it is determined that the item(s) was received by the USPTO.

II. Should applicant desire to supply the omitted item(s) and accept the date that such omitted item(s) was filed in the USPTO as the filing date of the above-identified application, a copy of this Notice, the omitted item(s) (with a supplemental oath or declaration in compliance with 37 CFR 1.63 and 1.64 referring to such items), and a petition under 37 CFR 1.182 (with the \$130.00 petition fee (37 CFR 1.17(h))) requesting the later filing date **must** be filed within **TWO MONTHS** of the date of this Notice.

III. The failure to file a petition (and petition fee) under the above options (I) or (II) within **TWO MONTHS** of the date of this Notice (37 CFR 1.181(f)) will be treated as a constructive acceptance by the applicant of the application as deposited in the USPTO. **THIS TWO MONTH PERIOD IS NOT EXTENDABLE UNDER 37 CFR 1.136(a) or (b).** In the absence of a timely filed petition in reply to this Notice, the application will maintain a filing date as of the date of deposit of the application papers in the USPTO, and original application papers (i.e., the original disclosure of the invention) will include only those application papers present in the USPTO on the date of deposit.

In the event that applicant elects not to take action pursuant to options (I) or (II) above (thereby constructively electing option (III)), amendment of the specification to renumber the pages consecutively and cancel incomplete sentences caused by any omitted page(s), and/or amendment of the specification to cancel all references to any omitted drawing(s), relabel the drawing figures to be numbered consecutively (if necessary), and correct the references in the specification to the drawing figures to correspond with any relabelled drawing figures, is required. Any drawing changes should be accompanied by a copy of the drawing figures showing the proposed changes in red ink. Such amendment and/or correction to the drawing figures, if necessary, should be by way of preliminary amendment submitted prior to the first Office action to avoid delays in the prosecution of the application.

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*A copy of this notice **MUST** be returned with the reply.*

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